

# **THE ANALYSIS OF BANK FINANCIAL PERFORMANCE USING ALTMAN (Z-SCORE) TO PREDICT BANKRUPTCY**

## **(Study On Listing And Delisting Bank In Indonesian Stock Exchange)**

**Risa Widia Ariesta**

**Suhadak**

**Nila Firdausi Nuzula**

Faculty of Administrative Science

Universitas Brawijaya

risawidiaariesta@gmail.com

### **ABSTRACT**

This research examines whether Altman (Z-Score) is suitable to measure the financial performance of listed and delisted banks in Indonesian Stock Exchange. Altman (Z-Score) is a method to predict a bankruptcy. The type of this research is descriptive research. This research is using documentation method as data collection method. The sampling method is purposive sampling. The samples of this research are consists of, eight listed banks and three delisted banks. There are assumptions about listed companies which have good financial performance, while delisted companies have poor financial performance. Delisting decision on Indonesian Stock Exchange can be caused by the bankruptcy. However, delisting decision is also based on the company decision to be going concern. The research results showed several listed banks were in gray area during observation. It indicated not all of listed banks have good financial performance. The results of Altman-test for delisted banks were in safe area. It indicated that not all delisted banks had poor financial performance. In fact, the reason of several companies to being delisted because of consolidation or expand its business.

**Keywords: Altman (Z-score), Bank, Listing, Delisting, Financial Performance**

### **PRELIMINARY**

There are many banks in Indonesia. Based on recapitulation which was conducted by Bank Indonesia on banking institution in October 2011, there are 1,957 banks in Indonesia, which are divided into 120 commercial banks and 1837 crediting banks ([www.bi.co.id](http://www.bi.co.id)). Bank was expected able to control the stability of the state's economy, because banking industry is the industry has function as financial system. Bank also can be called financial intermediaries. Therefore, banks have important role in the economic system. Banks are most sensitive to change, because of those complex roles. As happened in 2008, Century Bank experienced financial distress because of poor management to manage the funds from the public and the illegal sale of investment products. This phenomenon impacted to the financial stability of Indonesian banks. The existence of a bank depends on the public trust. Therefore the other bank will damaged by the bankrupt bank. The society will not believe in the bank even with another bank. When

bank is experiencing business difficulties, then that bank cannot past through the difficulties, that bank will liquidate or bankrupt. This situation will not occur if management does earlier prediction. Therefore, management can do preventive action which can reduce the risk of liquidation.

Financial statement can be used to analyze the company bankruptcy. Financial statement is tool to describe the condition of company. In financial statement analysis, financial ratio is a tool which can describe any post that needs more attention. Financial ratio has been used by many users. However, financial ratio has limitation. Z-score is a method which can eliminate the limitation. Z-score was invented by Altman. Z-score is bankruptcy prediction method. Altman also developed Z-score method. Beginner method is used for public manufacturing company. Second method is used for private manufacturing company. The last method is used for non-manufacturing company, both public and private.

This study urgent to being done, bank have crucial role in the society. In case, bank is experiencing financial distress, it will threaten the security of funds that have been saved to the bank. Therefore need prediction to protect the funds from customer and investor.

This research is using listed and delisted banks, because the researcher want to examine about the performance of listed and delisted banks by using financial performance. Financial performances of delisting banks are measured by the financial performance before the companies are delisted, in which due to predict whether delisted company remove from IDX because of bad performance. This study wants to prove about the assumption of good performance on listed company and poor performance on delisted company. In fact, delisting decision is not only caused by bankruptcy or poor performance, but delisting decision also comes from the company decision to exit from IDX (voluntary delisting). Therefore it needs the analysis to prove the assumption about good performance on listed company and poor performance on delisted company.

## **LITERATURE REVIEW**

### **Bank**

Based on Indonesian act number 10 date 10 November 1998 about Bank, Bank is an entity that collect funds from the society in the form of savings and channeling them to the public in the form of loans or other forms in order to improve the standard living of society. Bank is a business entity that has special characteristics that permit revocation, dissolution of legal entities, and the liquidation of the bank cannot be compared with generally accepted procedures. Bank activities are activities involving the public interest, public trust, and the Bank Indonesia. Therefore bank as financial institution has different characteristics with other institutions.

### **Shares Trading Activities**

Indonesian stock exchange is a facilitation of shares trading activities. There are three actions in the IDX, consist of listing, relisting, and delisting. Listing is inclusion of securities in the stock exchange. Relisting is re-inclusion of securities after removed from stock exchange. Delisting is deletion of securities from stock exchange. IDX have requirement for listed company to remain being listed which is based on IDX Regulation number I-A. The

regulation are non controlling shareholders have at least 7.5% by total shares in paid-up capital, total shareholders are at least 300 shareholders, listed company must provide document about independent commissioner; independent director; audit committee; corporate secretary; directors and commissioners; and internal auditors. Delisting decision can be applied by listed company itself and can be done by IDX which is based on IDX regulation number I-I. for delisting decision which are applied by listed company, that company obliged to being listed 5 years, delisting plan must be clear and approved by general meeting of listed company, and give the information about delegation and purchasing price of shares. While, delisting decision which is done by IDX, the company has negative effect both financially or legally, has condition which is affecting negative to the sustainability of company status as public company, and company is unable to recover the lost from negative condition.

### **Bankruptcy**

According to Rudianto (2013) bankruptcy is a failure in running the business company to achieve its goals. Bankruptcy can be caused by financial failure economic failure. Financial failure mean that company is unable to pay the company liabilities when matur, eventhough the total assets more than total liabilities. Economic failure mean that company is unable to cover the company cost. The bankruptcy can be cause by internal and external factors. Internal factor are consist of financial factor and management decision. External factor which are came from outside the company, in which tight of competition; economic condition; demand of product; and fluctuation of raw materials and other cost. Based on Rudianto (2013), some interest parties also use the information about bankruptcy. Those interest parties are management, investors, creditors, government, and public accountant.

### **Analysis of Banking Financial Statement**

Generally, financial statements are created by management to be responsible to the company performance both financially and structurally. However bank activities differ from other business activities. Therefore the uses of financial statements are divided into three, namely the financial statements for the public interest, bank management, and for supervision of Bank Indonesia (Bastian: 2006).

Bank financial statement is consist of balance sheet, income statement, statement of owner equity, statement of cash flow, and notes to the financial statement. Each report has more detailed in form of account, which are can be used as explanation to the users.

### Bankruptcy Analysis Using Altman (Z-score)

At first, Altman invented a method to predict the company condition by combining several ratios in 1968. Altman selected the ratio from 22 to 5 ratios. This method is used for manufacturing companies which is publishing the shares in stock exchange. The formula of Z-score:

$$Z = 1.2X_1 + 1.4X_2 + 3.3X_3 + 0.6X_4 + 1.05X_5$$

Notes:

$X_1$  is working capital/ total assets

$X_2$  is retained earnings/ total assets

$X_3$  is earning before interest and taxes/ total assets

$X_4$  is market value of equity/ book value of total liabilities

$X_5$  is sales/ total asset

Cut off point:

$Z > 2.99$ , the company is in a good condition.

$1.81 < Z < 2.99$ , the company is in the gray area or has financial difficulties.

$Z < 1.81$ , the company is in danger or potentially insolvent.

Altman did not satisfy with the first formula. In 1984, Altman found the formula for private manufacturing company. the formula of Z-score for private manufacturing company is:

$$Z = 0.717 X_1 + 0.847X_2 + 3.107X_3 + 0.420 X_4 + 0.998X_5$$

Notes:

$X_1$  is working capital/ total assets

$X_2$  is retained earnings/ total assets

$X_3$  is earning before interest and tax/ total assets

$X_4$  is book value of equity/ book value of total liabilities

$X_5$  is sales/ total assets

Cut off point:

$Z > 2.9$ , it means the company is in a safe area.

$1.23 < Z < 2.9$ , the company is in the gray area.

$Z < 1.23$ , it means the company has the potential to bankrupt.

Altman complete the Z-score formula in 2000. According to Altman (2000), the third formula is tested on non-manufacturing company, both bankrupt and non-bankrupt. The third model eliminates sales to

total assets ratio which is expected firm size (the impact of assets or sales) can be eliminated.

$$Z = 6.56X_1 + 3.26X_2 + 6.72X_3 + 1.05X_4$$

Notes:

$X_1$  is working capital/ total assets

$X_2$  is retained earnings/ total assets

$X_3$  is earnings before interest and tax/ total assets

$X_4$  is book value of equity/ book value of total liabilities

Cut off point:

$Z > 2.6$ , the company is in a good condition.

$1.1 < Z < 2.6$ , the company is in the gray area or experiencing financial problems.

$Z < 1.1$ , the company is in a dangerous area.

This research tests the non-manufacturing company. This study uses the third formula of Altman (Z-score), because the third formula is used for non-manufacturing company. Therefore this formula is suitable for bank as non-manufacturing company.

### RESEARCH METHOD

The type of this research is descriptive research with quantitative method. The approach of this study is case study. The type of data used in this study is secondary data. The data are acquired from Indonesian stock exchange (IDX). Focus of research is an important for one research, because without focus, the research discussion will bias from idea. Thus the focus of this study is consists of financial statement.

1. Part of financial statement used in this study is balance sheet, income statement, and performance summary of listed and delisted bank in Indonesian stock exchange.
2. Financial ratio are consist of, working capital to total assets ratio, retained earnings to total assets ratio, earning before interest and tax to total assets ratio, book value of equity to book value of total liabilities.

Populations of this research are 42 listed banks and 15 delisted banks. This study use purposive sampling as sampling technique. This technique is electing method for samples based on the consideration of researcher (Darmawan: 2013).

**Table 1. Criteria of Purposive Sampling**

Listing	Delisting
Banks are listed in IDX 2011-2013.	Banks which ever delisted from IDX
Listed banks always increase the profit during observation.	Banks published annual reports
Listed banks never do partial delisting.	Banks never relisted from 2011-2013

Sources: Data Processed

Based on the criteria above, total sample for listed bank group are 8 banks and delisted bank group are 3 banks. A method for data collection is documentation method. Data analysis is a process of data into a form which more easy to understand and interpret to help in resolving problem. Steps for analysis are:

1. Calculate working capital to total assets (WC/TA), Retained earnings to total assets (RE/TA), EBIT to total assets (EBIT/TA), and book value of equity to book value of each company
2. Analyze the ratio with Altman (Z-score) formula.

$$Z = 6.56X_1 + 3.26X_2 + 6.72X_3 + 1.05X_4$$

3. Classify the condition based on cut off point, are:  
 $Z > 2.6$ , the company is in a good condition.  
 $1.1 < Z < 2.6$ , the company is in the gray area or experiencing financial problems.  
 $Z < 1.1$ , the company is in a dangerous area.
4. Analyze the result of Z-score for listed and delisted banks
5. Taking the conclusions about the performance of company.

## RESULTS

### The Implementation of Altman (Z-score) for Listed Bank during Observation

Based on the sample criteria for listed bank group, banks that would become sample, are:

1. PT. Bank Capital Indonesia, Tbk
2. PT. Bank Tabungan Pensiun Nasional, Tbk
3. PT. Bank of India Indonesia, Tbk
4. PT. Bank Bumi Arta, Tbk
5. PT. Bank BPD Jawa Barat dan Banten, Tbk
6. PT. Bank Tabungan Negara, Tbk
7. PT. Bank Nusantara Parahyangan, Tbk
8. PT. Bank Himpunan Saudara 1906, Tbk

**Table 2. Z-Score Value for Listed Banks**

No.	Company	Z-Score			Category		
		2011	2012	2013	2011	2012	2013
1	PT. Bank Capital Indonesia, Tbk	4.027	3.677	3.588	Safe	Safe	Safe
2	PT. Bank Tabungan Pensiun Nasional, Tbk	3.152	2.956	2.471	Safe	Safe	Gray
3	PT. Bank of India Indonesia, Tbk	2.390	2.089	1.857	Gray	Gray	Gray
4	PT. Bank Bumi Arta, Tbk	3.473	2.814	2.475	Safe	Safe	Gray
5	PT. Bank BPD Jawa barat dan Banten, Tbk	2.256	1.873	1.479	Gray	Gray	Gray
6	PT. Bank Tabungan Negara, Tbk	2.231	2.136	1.947	Gray	Gray	Gray
7	PT. Bank Nusantara Parahyangan, Tbk	2.231	2.366	2.538	Gray	Gray	Gray
8	PT. Bank Himpunan Saudara 1906, Tbk	2.823	2.538	2.218	Safe	Gray	Gray

Source : Data processed

Table 2 showed the result of Z-score for listed banks. Bank Capital Indonesia was on safe area during 2011-2013 and had highest value of Z-score. Bank Tabungan Pensiun Nasional and Bank Bumi Arta were on safe area in 2011 and 2012. However, Bank Tabungan Pensiun Nasional and Bank Bumi Arta felt into gray area in 2013, in which Z-scores were 2.471 and 2.475. Bank Himpunan Saudara 1906 was on safe area in 2011, however the bank had concurrently experienced a decline into gray area in 2012 (2.538) and 2013 (2.218).

Bank Nusantara Parahyangan, Bank of India Indonesia, Bank BPD Jawa Barat dan Banten, and Bank Tabungan Negara were in gray zone during observation. However, Bank Nusantara Parahyangan was able to increase the Z-score during the three years. The rule for Z-score is, that a company can be regarded as a safe firm if it has minimum Z-score of 2.6. however, Z-scores for Bank of India Indonesia, Bank BPD Jawa Barat dan Banten, and Bank Tabungan Negara were declining during the observation. For banks which were on gray area

during observation, its mean those banks had financial problem. Thus, Its need more appropriate treatment to maintain the financial problem.

**Table 3. Z-score Value for Delisted Banks**

No.	Company name	Z-Score				Category			
		2004	2005	2006	2007	2004	2005	2006	2007
1	Bank Arta Niaga Kencana	2.792	2.750	3.457		Safe	Safe	Safe	
2	Bank Lippo		3.532	3.423	2.861		Safe	Safe	Safe
3	Bank UOB Buana		2.923	3.397	2.751		Safe	Safe	Safe

Sources: Data Processed

Table 3 showed the results of Z-score for delisting banks. Table above showed that three delisting companies generally had good financial performances. Bank Artha Niaga Kencana was indicated to be able to maintain the financial performance during observation. it can be proved by the category of Bank Artha Niaga Kencana was in safe during 2004-2006. Bank Lippo was in safe area during observation. However, Bank Lippo experienced a decline in the last three years before delisting decision. Bank UOB Buana was indicated that it had good financial performance during observation. it can be seen by the category of Bank UOB Buana was also in safe criteria during observation.

Result of this study describes that not all delisting companies were in bankrupt situation when the company would be delisted from IDX. In the reality, Bank Arta Niaga Kencana decided to delist in 2007 from IDX, because it was acquired by Commonwealth Bank in the same year. Bank Lippo decided to voluntary delisted in 2008. The reason of Bank Lippo delisted from IDX, because Bank Lippo was merged by Bank Niaga in the same year and became Bank CIMB Niaga. There were two reasons which made Bank UOB Buana decided to delist from IDX. First reason was UOB Singapore as parent company decided to expand their business without being listed in IDX. Second, the shareholders of Bank UOB Buana are less than 350 parties and the amount of shares were in odd lot. Based on IDX Regulation number I-A, the limit of the total shareholders of one listed company are 300 parties. Odd lot shares cannot be liquidated, because it cannot be traded. Odd lot is amount of shares that are less than 500 shares, thus the amount of shares cannot be traded on the regular market.

The findings indicated that not all listed bank had good financial performances. Based on the result, listed banks were indicated that had financial difficulties. It could be proved by several listed banks were in gray area during observation. In other hand, Delisted banks had good financial performance or were categorized in safe area. It indicated that not all delisting companies were in bankrupt position when the delisted from IDX. Therefore the assumption about bankrupt condition of delisted companies is not necessarily true. The results of financial analysis by using Altman-test showed that delisted banks were not indicating bankruptcy before delisting decision.

## CONCLUSION AND SUGGESTION

### Conclusion

Being listed in IDX and become go public company does not always followed by good financial performance. Using Altman (Zscore) to detect the bankruptcy level on banking sector, researcher found that some samples from listed banking companies are either totally in gray area, which means suffered financial problems, or partially in gray area during three years observation.

Not all delisting companies were in bankrupt condition when those companies decide to being delisted from IDX. Therefore based on the findings, it conclude that the companies which are listed in IDX do not always have good financial performance, and delisted companies in IDX do not always have bad financial performance. Besides bankruptcy condition, other factors can be a consideration to determine companies become go public or private. Such companies might still exist in IDX, eventhough they have financial distress because of their idealism, in which they believe their companies are still able to still have sufficient resources to pass through it and

going concern. Yet, the companies need some consideration to take decision whether that companies should still listed in IDX or become delisted from IDX.

### Suggestion

According to conclusion above, Investors and bank customers should investigate the financial performance and trace the track record of that bank before invest or save money to bank. Thus bank customers and investors take into consideration the company condition and credibility. Bank is the institution that exists because of public trust. Bank customers and Investors more careful in investing and saving decision, Due to decreased losses and high risk.

Company management more attends to the company financial ratio due to measure the company performance in the current period. Management needs to evaluate the performance of the company and the problems being faced by the company in order to establish policies to improve and increase performance and productivity.

### BIBLIOGRAPHY

Altman, E. 1968. *Financial Ratios, Discriminant Analysis and Prediction of Corporate Bankruptcy*. Vol 23. No. 4.

\_\_\_\_\_, E.I. 2000. *Predicting Financial Distress of Companies : Revisiting The Z-Score And Zeta Models.Updated From E. Altman, Financial Ratios, Discriminant Analysis and The Prediction of Corporate Bankruptcy, Journal of Banking & Finance 1*.

Bank Indonesia. 2012. “*Institusi Perbankan Di Indonesia*”. Retrieved in November 24<sup>th</sup>, 2014 from <http://www.bi.go.id/id/perbankan/ikhtisar/lembaga/Contents/Default.aspx>

Bastian, Indra and Suhardjono. 2006. *Akuntansi Perbankan* book 1. Jakarta: Salemba Empat.

\_\_\_\_\_, Indra and Suhardjono. 2006. *Akuntansi Perbankan* book 2. Jakarta: Salemba Empat.

Darmawan, Deni . 2013. *Metode Penelitian Kuantitatif*. bandung: PT. Remaja Rosdakarya Offset.

Gustia, Irna. 2008. “*Saham Bank Lippo Delisting dari BEI 3 November*”. Retrieved in Mei 20<sup>th</sup>,

2015 from <http://finance.detik.com/read/2008/10/24/092151/1025227/5/saham-bank-lippo-delisting-dari-bei-3-november>

\_\_\_\_\_. 2008. “*Alasan Bank UOB Buana Keluar dari BEI*”. Retrieved in Mei 20<sup>th</sup>, from <http://finance.detik.com/read/2008/06/18/094343/958256/6/alasan-bank-uob-buana-keluar-dari-bei>

*Peraturan Direksi PT. Bursa Efek Indonesia no. Kep-00001/BEJ/01-2014. Peraturan Nomor I-A Tentang Pencatatan Saham dan Efek Bersifat Ekuitas Selain Saham yang Diterbitkan oleh Perusahaan Tercatat*, Retrieved on May 2<sup>th</sup>, 2015 from <http://www.idx.co.id/id-id/beranda/peraturan/peraturanpencatatan.aspx>

*Peraturan Direksi PT. Bursa Efek Indonesia no. Kep-308/BEJ/07-2004. Peraturan Nomor I-I Tentang Penghapusan Pencatatan (Delisting) dan Pencatatan Kembali (Relisting) Saham di Bursa*. Retrieved on May 2<sup>th</sup>, 2015 from <http://www.idx.co.id/id-id/beranda/peraturan/peraturanpencatatan.aspx>

Rudianto. 2013. *Akuntansi Manajemen: Informasi Untuk Pengambilan Keputusan Strategis*. Jakarta: Erlangga.

*Undang-Undang Nomor 10 Tahun 1998 Perubahan Atas Undang-Undang Nomor 7 Tahun 1992 Tentang Perbankan*, retrieved on 20 December 2014 from [http://www.bi.go.id/id/tentang-bi/uu-bi/Documents/uu\\_bi\\_1099.pdf](http://www.bi.go.id/id/tentang-bi/uu-bi/Documents/uu_bi_1099.pdf)

Wibisono, Adrian. 2007. “*Dibeli Commonwealth, Bank ANK Delisting di BEJ*”. Retrieved in Mei 20<sup>th</sup>, 2015 from <http://finance.detik.com/index.php/detik.read/tahun/2007/bulan/01/tgl/03/time/173249/idnews/726553/idkanal/5>